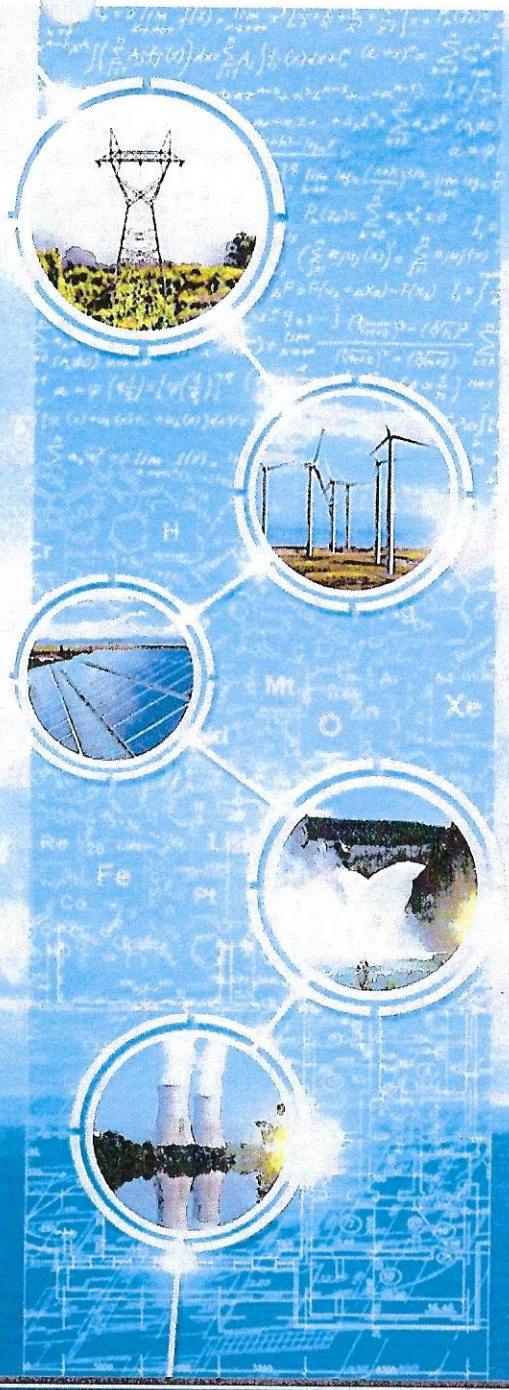

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DCSEU FY2015 Evaluation Results Summary

DCSEU Meeting, June 28, 2016

Denise Rouleau, Tetra Tech

Dan Belknap, Tetra Tech

leidos

BAUMANN CONSULTING

GDS Associates, Inc. Engineers and Consultants

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Agenda

Team

Purpose

DCSEU Annual Evaluation Results & Efforts

Evaluation of Performance Benchmarks

Q&A

The Team

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Company	Contributor	Role
Tetra Tech	Denise Rouleau	Project Manager
	Kimberly Bakalars	C&I Case Study Lead
	Richard Hasselman	Low Income Impact Evaluation Lead, Strategic Evaluation Plan Contributor, and Technical Advisor
	Dan Belknap	Retail Products Impact Evaluation Lead, Sampling Lead, and NTG Advisor
	Lisa Stefanik	Performance Benchmarking Evaluation Lead and Resource Lead
	Pam Rathbun	Strategic Evaluation Plan Contributor
Leidos	Kendra Scott	C&I Impact Evaluation Lead
GDS Associates	Tim Clark	Residential and Solar Impact Evaluation Lead
	Jeff Davis	Cost Effectiveness Analysis Lead
Baumann Consulting	Jonathan Lemmond	Impact Evaluation—On-site Verification Lead

Relationship of Evaluation, Measurement, and Verification

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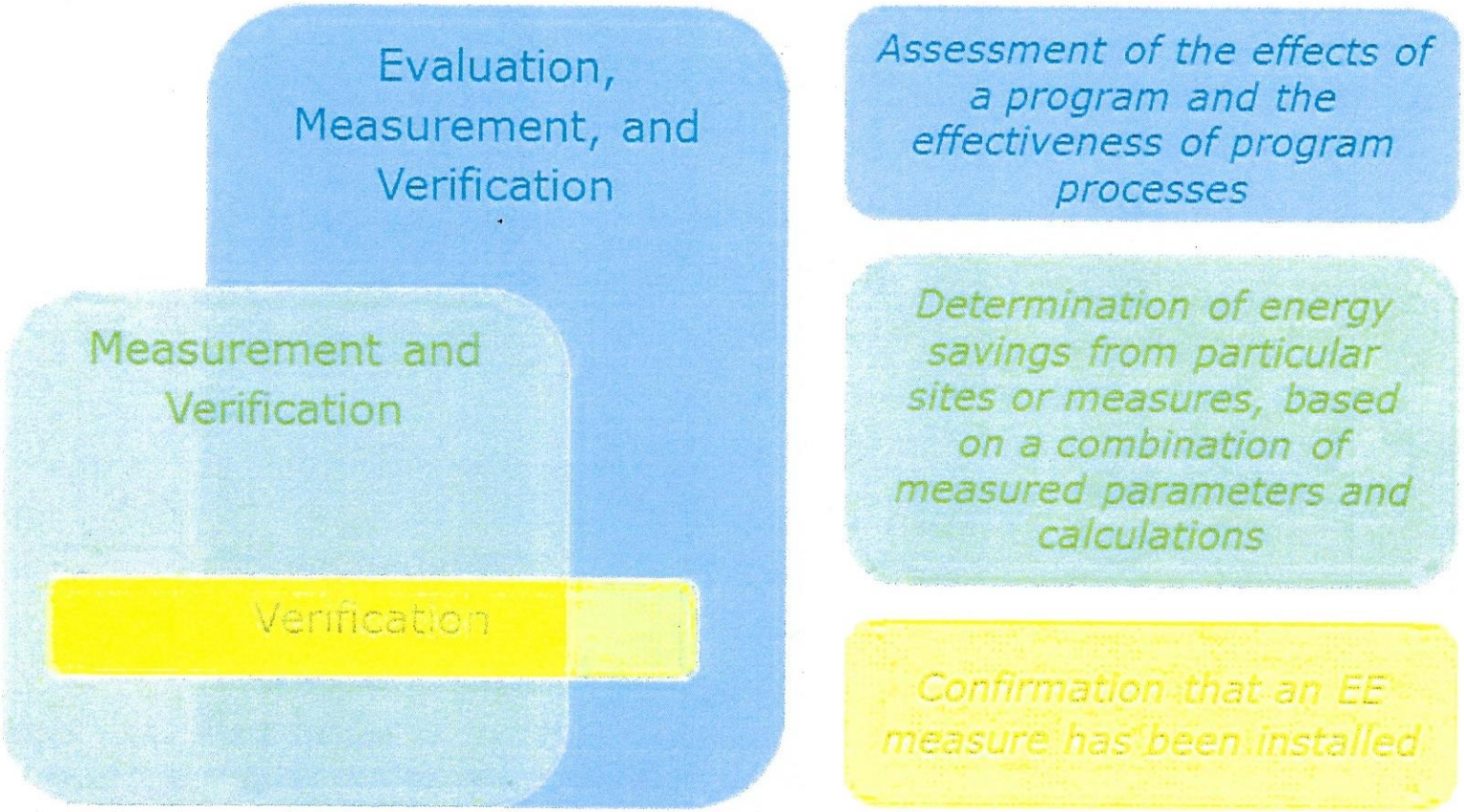

Source: The Changing EM&V Paradigm; A Review of Key Trends and New Industry Developments, and Their Implications on Current and Future EM&V Practices, NEEP Evaluation, Measurement and Verification Forum, December 2015, page 8

Objectives of DCSEU's EM&V

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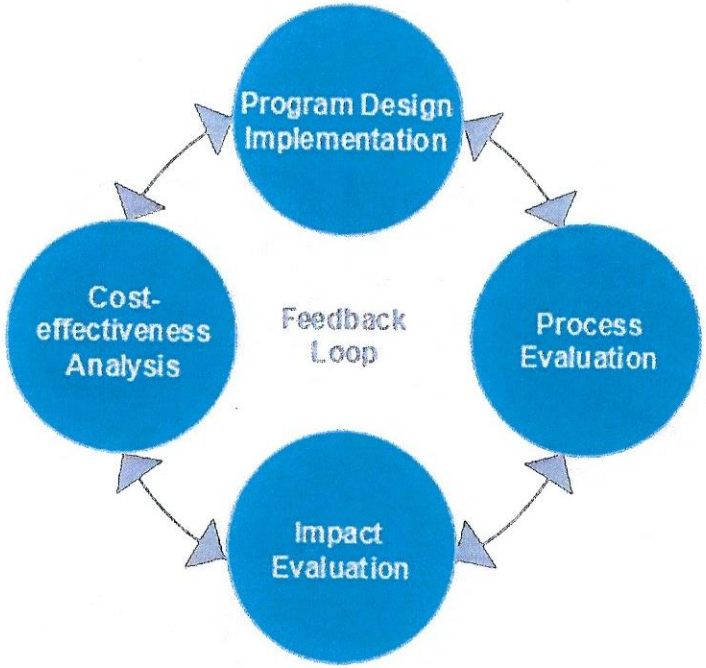
- Document E savings impacts of the DCSEU's portfolio
- Determine program cost-effectiveness
- Provide feedback on initiative portfolio performance
- Verify the performance benchmarks
- Identify and provide feedback on relevant researchable issues
- Prepare and maintain a District of Columbia TRM



Evaluation Overview

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- Portfolio is cost effective (4.06 C/B ratio under the Societal Benefit Test)
- RR are in reasonable range –kW work to be more accurate (.94 – 1.19)
- Overall customer satisfaction is high
- Identified tracking and TRM improvements
- Performance Benchmarks --all 6 met minimum targets and 3 met the max target as well.
  - Recommended a guidance document.

Initiative Level Cost Effectiveness Review

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Initiative	DCSEU (original)	DCSEU (adjusted)	S 1 Compared to Model	S 2 +Evaluation Cost	S 3 + RR	S 4 + NTG
Solar Photo Voltaic	1.91	1.91	1.94	1.89	1.89	2.09
Solar Hot Water	1.24	1.24	1.28	1.27	1.27	1.31
Income Qualified Home Improvement	0.97	0.97	0.99	0.93	1.02	1.01
HOME Performance with ENERGY STAR	0.69	0.70	0.67	0.65	0.80	0.77
Business Energy Rebates	7.95	9.26	10.37	10.01	9.77	9.25
Lighting Replacement	5.20	6.26	6.18	5.86	5.53	5.11
Commercial Custom	7.45	7.55	7.63	7.49	7.09	6.48
Low Income MF Contractor DI & Comprehensive	5.02	5.72	5.74	5.46	5.47	5.47
Low Income MF Custom	4.07	4.28	4.51	4.41	3.56	3.56
Appliances, Retail Efficient Products	5.12	7.41	8.17	7.96	8.00	6.66
Retail Lighting Food Bank	2.69	3.58	3.09	2.91	2.90	2.90
Program Total	5.61	6.36	6.53	6.35	6.12	5.39
Portfolio Including Support & Admin	4.57	5.07	5.09	4.98	4.80	4.06

Other Evaluation Activities

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- Metering
- Three C&I case studies
- Technical review
  - Non Energy Benefits
  - Performance Benchmark Recommendations for FY2017 and beyond
- TRM review
- Hotel Hours of Use Study
- QA/M&V on-site verification coordination Pilot (underway)
- Chiller peak study (underway)
- FY2017-FY2021 EM&V Strategic Plan

FY2015 DCSEU Performance Benchmarks Verification Summary

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PB	Performance Benchmark	Maximum Target	Minimum Target	FY2015 Reported	FY2015 Verified	Max. Target Achieved (%)	Min. Target Achieved (%)
1a	Reduce consumption—electricity (MWh)	103,690	51,845	57,208	53,724	No (52%)	Yes (104%)
1b	Reduce consumption—natural gas (Mcf)	273,428	61,521	87,694	94,399	No (35%)	Yes (153%)
2	Increase renewable energy (reduction cost/kWh)	20%	10%	23% (reduction)	14% (reduction)	No	Yes
3	Reduce growth in peak demand (KW)	20,000	2,000	8,625	7,950	No (40%)	Yes (398%)
4	Improve EE in low-income housing (% of annual budget)	$5,280,000	$3,520,000	$5,569,636	$5,569,636	Yes (105%)	Yes (158%)
5	Reduce growth in kW of largest users	50	30	61	52 (85%)	Yes (104%)	Yes (173%)
6	Increase number of green-collar jobs (hrs. & spend)	88	53	95	112	Yes (127%)	Yes (211%)

Performance Benchmarks Comparison of Prior Years

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PB	Performance Benchmark	FY2012		FY2013		FY2014		FY2015	
		Max. Target Achieved (%)	Min. Target Achieved (%)	Max. Target Achieved (%)	Min. Target Achieved (%)	Max. Target Achieved (%)	Min. Target Achieved (%)	Max. Target Achieved (%)	Min. Target Achieved (%)
1a	Reduce consumption—electricity (MWh)	N/A	No (47%)	No	Yes (101%)	No (58%)	Yes (115%)	No (52%)	Yes (104%)
1b	Reduce consumption—natural gas (Mcf)	N/A	No (4%)	No	No (37%)	No (50%)	Yes (222%)	No (35%)	Yes (153%)
2	Increase renewable energy (reduction cost/kWh)	N/A	No (82%)	Yes (315%)	Yes (730%)	Acquisition costs > in total although individual initiatives decreased		No	Yes
3	Reduce growth in peak demand (KW)	N/A	Yes (161%)	No (40%)	Yes (401%)	No (40%)	Yes (396%)	No (40%)	Yes (398%)
4	Improve EE in low-income housing (% of annual budget)	N/A	Yes (106%)	Yes (118%)	Yes (177%)	Yes (117%)	Yes (175%)	Yes (105%)	Yes (158%)
5	Reduce growth in kW of largest users	N/A	N/A	N/A	N/A	Yes (134%)	Yes (223%)	Yes (104%)	Yes (173%)
6	Increase number of green-collar jobs (hrs. & spend)	N/A	?--check final?	No (52%)	No (65%)	No (96%)	Yes (121%)	Yes (127%)	Yes (211%)

DCSEU Acquisition Costs on the Upswing

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Electric

Fiscal Year	DCSEU Acquisition Cost $/MWh	Pennsylvania Acquisition Cost $/MWh	Maryland Acquisition Cost $/MWh
FY2012	$549	-	-
FY2013	$230	-	$208
FY2014	$195	$170	$271
FY2015	$237	$209	$338

Gas

Fiscal Year	DCSEU Acquisition Cost $/MMBtu
FY2012	$152
FY2013	$64
FY2014	$32
FY2015	$44

- After 3 consecutive years of costs being driven down, they are now on the rise
- This is in line with neighboring states and national studies
- Costs rise with more mature programs

Electric FY2016 Acquisition Cost Forecast

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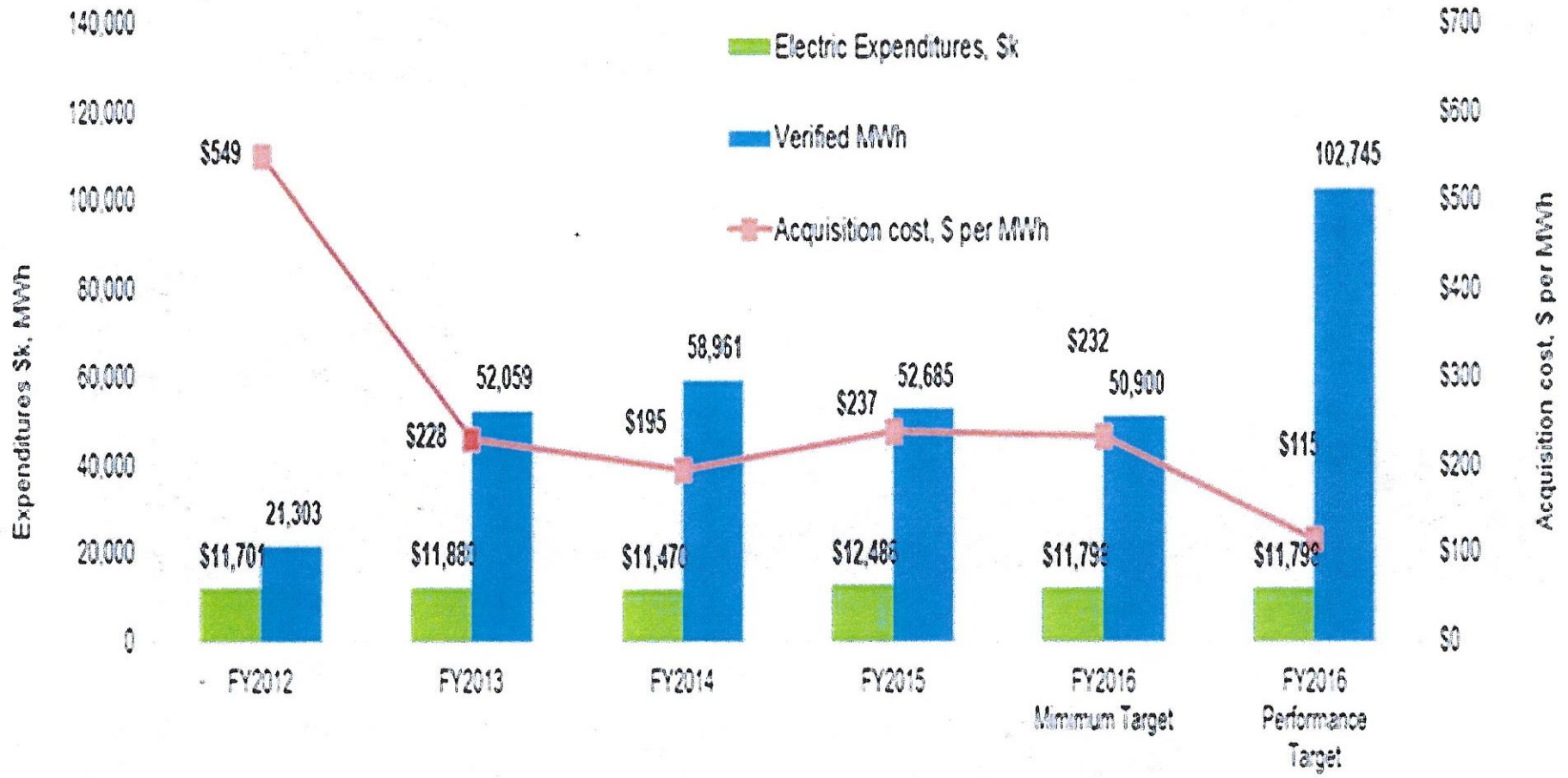
Total Electric Savings Acquisition Costs: FY2012 - FY2015 Verified and FY2016 Budget at Generator Level



Gas FY2016 Acquisition Cost Forecast

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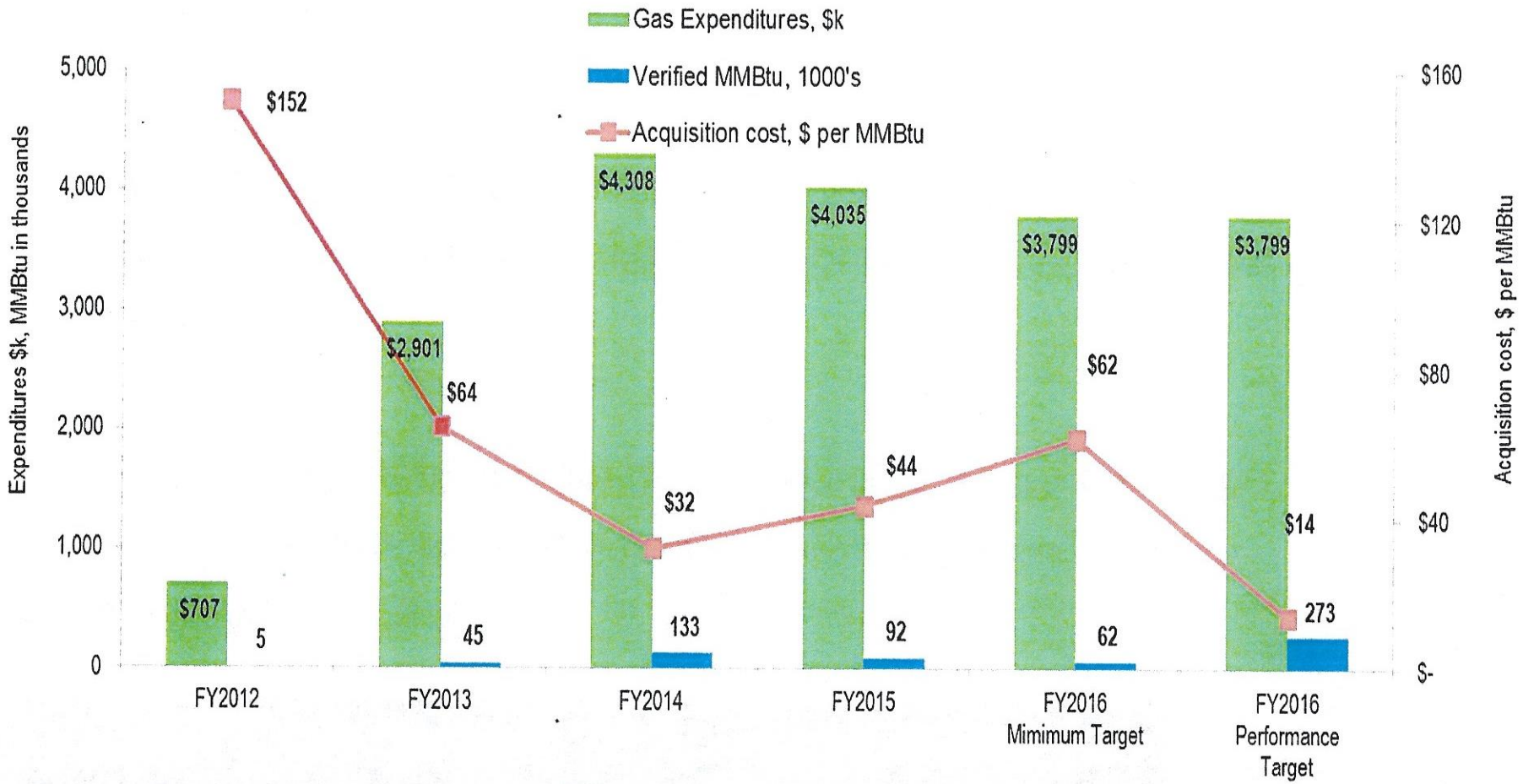
Total Gas Saving Acquisition Costs: FY12, FY13, FY14 Actual and FY2015 Budget



FY2016 DCSEU Acquisition Costs Forecast

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- Electric AC forecast
  - $232 to meet **minimum** target (requires 2% cut in AC)
  - $115 to meet **maximum** target (requires a 50% cut in AC)

- Gas AC forecast
  - $62 to meet the **minimum** target (possible 40% increase)
  - $14 to meet the **maximum** target (requires a 68% decrease)

- Minimum targets could be met with the current budget the maximum targets seem out of reach even with cost cutting efforts

- May warrant funding considerations and ongoing review

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